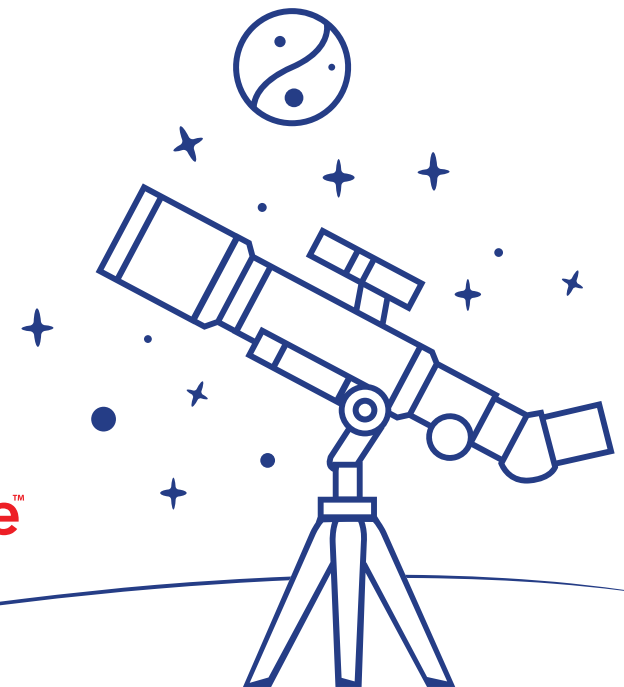


TELESCOPE INSTRUCTION MANUAL

ALT-AZ LINE



AmScope[™]

AmScope[™]

Phone : 1-888-950-2888 (toll free) | Fax : 949-271-4795
Our Office Hours are Monday to Friday, from 5:00am to 6:00pm Pacific Time.

www.amscope.com

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United Scope's Alt-Az telescope line has everything you need included to start your night sky adventure. It is a perfect telescope line for users from a beginner to intermediate user and with the included items, you are able to view some of the most well-known celestial objects.

The AZ line comes with a variety of apertures including 50, 60, 70, 90, and 102 refractors and the size of the objective lens determines how much detail one can observe with the telescope. Some apertures also come in different focal length which determines the magnification of the telescope.

This telescope is available with the following OTAs and mount styles:

SKU	Aperture (mm)	Focal Length (mm)
TLS-60700	60	700
TLS-60900	60	900
TLS-70700	70	700
TLS-70900	70	900
TLS-T70900	70	900
TLS-S50360	50	360
TLS-S50600	50	600
TLS-S70300	70	300
TLS-PAZ-90600	90	660
TLS-PAZ-102600	102	660

Each telescope in this series features a solid Altitude-Azimuth mount and a lightweight and sturdy aluminum/steel tripod with fully adjustable legs to make it perfectly viewable for either youngsters or adults.

The AZ mount also equips with slow motion control mechanism for both axes to make it possible to make fine adjustment when tracking celestial objects as

they move across the sky. They are conveniently located close to the viewer making it easy to view and adjust the telescope at the same time. With the included eyepieces, you can view a wide range of objects. With the included Barlow lens, the observer is able to see great details such as the crater of the moon, Saturn's ring and even deep sky object's such as the Orion Nebula Galaxy.

Each telescope also comes with a high performance 8X6 optical viewfinder or a red dot viewfinder to help you locate celestial and terrestrial objects you want to observe with the most joy.



- The safest way to look at the sun through your telescope is NOT to! Not only could you damage your eye(s), but you can also damage the lenses in the telescope. Never look at the sun through this telescope without a proper solar filter. Looking at or even near the sun will cause instant and irreversible damage to your eye(s).

SOLAR WARNING



- Never let the telescope unattended, pointing at or near the sun.
- Never leave the telescope unsupervised, either when children are present or adults who may not be familiar with the correct operating procedures of the telescope.
- Do not look through the telescope or its viewfinder as it is moving.
- This device may be used by children under 18 and by people with reduced physical, sensory, or mental skills or a lack of experience or knowledge, provided that they are supervised or have been instructed on how to use the device safely, and are fully aware of the consequent risks of use.
- Do not disassemble! Disassembly of the telescope could result in personal injury and telescope malfunction.
- Always place the telescope on a completely flat surface. Unstable

placement of the telescope may cause it to fall, and if handled without caution, it may easily injure yourself and others.

- Never subject the device, especially the lenses, to direct sunlight. Light concentration can cause fires and/or burns.
- Never use your telescope under rainy conditions: this telescope is not designed to be water-proof. If your telescope accidentally gets caught in rain, please wipe down the water with a soft dry clean cloth, but if the lens gets soaked by water, please contact us at info@amscope.com right away for details on a service solution.

3. BEFORE INITIAL USE

Before you use the telescope for the first time, you must:

- Read this instruction manual carefully before using the telescope and keep it for future reference.
- Unpack the items supplied.

3.1 Packing List

ITEM	DESCRIPTION	QTY
OTA	Optical Tube Assembly	1
Mount	Altitude-Azimuth Mount	1
Eyepiece	1.25 MA 26mm	1
	1.25 MA 9mm	1
	1.25 MA 6.3mm	1
Barlow Lens	2x Barlow Lens	1
View Finder	Viewfinder	1
Tripod	Stainless Steel Full Height Tripod	1
Diagonal	Erect Image Diagonal	1
Other Accessories	Accessory Tray	1
	Slow Motion Control Cables	2
	Generic Manual	1

3.2 Unpacking

Ensure that the device is complete with all the accessories and that it doesn't present abnormalities, failures, or damage.

If the device is missing parts (see chapter 3.1 "The packing list"), or shows clear aesthetic damages due to collisions or shipping damage, please contact us at info@amscope.com. Unpack carefully as some parts are small.

Do not leave packaging material lying around carelessly. It may become dangerous playing material for children. Do not dispose of the packing materials until the telescope is installed and working.



WARNING: To avoid the danger of suffocation, keep plastic bags away from babies and children!



WARNING: Contains small parts, not for children under 3 years or any individuals who tend to place inedible objects in their mouths.



0-5 Years

WARNING: The red dot viewfinder contains a button or coin cell battery. A swallowed button or coin cell battery can cause internal chemical burns in as little as two hours and lead to death. Dispose of used batteries immediately. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

Ensure all packaging materials and any promotional labels or stickers are removed from the machine and accessories before the first use.

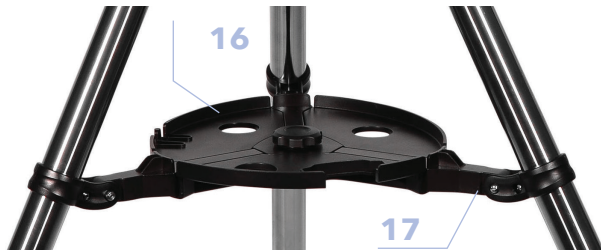
Put your telescope together for the first time when you are indoors and have lots of light. Just because a telescope is normally used during evening hours doesn't mean you have to set it up in the dark! Identify the various parts and familiarize yourself with the correct assembly procedure before attempting it outdoors (see chapter 6 "Setting up the telescope").

Choose a large, open area to work to allow room for all parts to be unpackaged.

Once you are finished with assembly, stay indoors and take some time to learn a bit more about its features before you take your telescope outside for the first time.

RESPECT PRIVACY: Respect other's privacy. Do not use the telescope to look into other people's homes, or otherwise infringe on their privacy.

REFRACTOR TELESCOPE



Inset A:
Accessory Tray



Inset B: Tripod Leg



Inset C: Viewfinder Assembly

- | | | |
|---|---|---|
| 01. Alt-azimuth mount | 10. 90 degree erect-image diagonal | 18. Tripod leg lock knob (see Inset B) |
| 02. OTA lock knob | 11. Focusing knob | 19. Adjustable sliding center leg extension (see Inset B) |
| 03. Vixen dovetail | 12. Azimuth lock knob | 20. Red dot viewfinder power switch (see Inset C) |
| 04. Front lens cap (not visible in the image) | 13. Altitude control handle | 21. Reddot viewfinder alignment screws (see Inset C) |
| 05. Light shield | 14. Azimuth slow motion control knob | |
| 06. Optical tube assembly | 15. Tripod legs | |
| 07. Viewfinder (see Inset C) | 16. Accessory tray (see Inset A) | |
| 08. Diagonal locking thumb screw | 17. Tripod leg spreader bar (see Inset A) | |
| 09. Eyepiece | | |



REFRACTOR TELESCOPE



- | | | |
|--|--------------------------------------|--------------------------|
| 01. Tripod leg lock knob | 06. Diagonal | 11. OTA lock knob |
| 02. Tripod spreader bar | 07. Eyepiece lock knob | 12. Bubble level |
| 03. Accessory tray | 08. Eyepiece | 13. Azimuth control knob |
| 04. Altitude slow motion control cable | 09. 8X6 Viewfinder & adjustment knob | 14. Azimuth lock knob |
| 05. Focus knob | 10. Altitude lock knob | |

6.1 Tripod

- Set up telescope where there is a clear view of the sky and the ground is stable.
- Fully spread the tripod legs apart and set the height of tripod by loosening the tripod leg lock knobs so it is at the appropriate height.
- Level the top of the tripod by adjusting the height of the three tripod legs
- Attach the accessory tray to the tripod by threading the tray onto the center piece of the spreader bars.

6.2 Mount (TLS-PAZ series)

- Unfold the mount so that it is away from the tripod.

6.3 Ocular Tube Assembly

TLS Series

- Place the optical tube onto the saddle plate and tighten the two OTA lock knobs to a firm feel.
- Install the diagonal into the optical tube, and secure the diagonal by tightening the diagonal lock knob.
- Slide an eyepiece into the diagonal and secure the eyepiece by tightening the diagonal lock knob.
- Install the view finder and secure it by tightening the view finder lock knob to a firm feel.

TLS-T Series

- Place the optical tube onto the saddle plate and tighten the two OTA lock knobs to a firm feel.
- Install the diagonal into the optical tube, and secure the diagonal by tightening the diagonal lock knob.
- Slide an eyepiece into the diagonal and secure the eyepiece by tightening the diagonal lock knob.

6.3 Ocular Tube Assembly

TLS-T Series

- Install the view finder and secure it by tightening the view finder lock knob to a firm feel.

TLS-PAZ Series

- Locate the two threaded holes on the bottom of the dovetail.
- Place the optical tube onto the saddle plate and tighten the OTA lock knobs to a firm feel.
 - a) Turn the OTA lock knob counter-clockwise to tighten the OTA onto the saddle.
 - b) Before tightening the lock knob all the way, slide the OTA back and forth to adjust the location of the OTA as needed. This might vary for different users.
 - c) Before removing the OTA, remember to support the OTA in one hand before loosening the lock knob.
- Install the diagonal into the optical tube, and secure the diagonal by tightening the diagonal lock knob.
- Slide an eyepiece into the diagonal and secure the eyepiece by tightening the diagonal lock knob.
- Install the view finder and secure it by tightening the view finder lock knob to a firm feel.

6.4 Viewfinder Alignment

- Point the telescope at a land object that is at a far distance during the daytime, such as a distanced stop sign.
- It is best practice to use a higher power eyepiece to align the telescope.
- Look through the eyepiece and center the object in the eyepiece.
- Focus the telescope by turning the focus knob till a clear and sharp image appears.
- Loosen one of the view finder's alignment screws and tighten another

at a time till the crosshair is overlapping the same object.

- To further align the optical tube and viewfinder, repeat this procedure at night by pointing at a celestial object such as the moon.

6.5 How to use a telescope

- To track a celestial object in the sky, first loosen the Azimuth and Altitude lock knobs and move the telescope manually, and then re-lock the lock knobs after it is roughly pointing at the object.
- Use the Azimuth slow-motion control knob and the Altitude slow-motion control cable to center the object and to track the object as it moves across the sky.

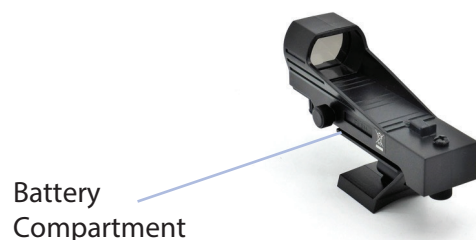


An eyepiece has a narrow field of view. The red dot viewfinder has a wider field of view, which makes it easier to locate objects. Once the red dot viewfinder is aligned to the optical tube, the red dot can be used to locate and place objects more easily in the eyepiece of the telescope.

The viewfinder is powered by a 3V Lithium Coin battery (type CR2032) which is included. Before using the viewfinder for the first time, remember to remove the plastic insulator that is blocking the battery from connecting.

When it is time to replace the battery, push the left side of the viewfinder housing. The battery compartment will slide out on the right side of the device. Take out the battery and slide a new battery in place with the positive side up. Then push the battery compartment back into the viewfinder and power on the device.

To preserve battery life, don't forget to turn off the viewfinder after use.



8. HANDLING OR TRANSPORTING YOUR TELESCOPE

Handling the telescope around or transporting it to the observing site requires careful handling.

The telescope can be transported in 2 main parts: The telescope tube and the mount.

We suggest removing the accessories from the optical tube. Cover the telescope tube and the eyepiece with their caps. It is also convenient to remove the fine-adjustment control cables and counterweights.

The accessory tray should be removed to be able to transport with the 3 tripod legs closed.

The telescope can be transported in a vehicle without a problem. Padded insulation can prevent scratches on the tube but it is not necessary. The mirrors may go out of collimation after a bumpy ride but collimation would be required after transportation anyway, with or without padding.

9. CLEANING YOUR TELESCOPE

While your telescope requires little maintenance, there are a few things to remember that will ensure your telescope performs at its best.

Use a slightly damp soft cloth to clean the outside of the tube and tripod. Water should be enough to do the job. Please do not use any organic solvent on your telescope, for example, alcohol, benzene, and other hazardous chemicals as this might ruin it. Do not let any liquid enter the telescope.

Occasionally, dust and/or moisture may build up on the objective lens of your telescope. Special care should be taken when cleaning the instrument so as not to damage the optics.

If dust has built upon the lens, remove it with a brush (made of camel's hair) or with a can of pressurized air. Spray at an angle to the lens for approximately two to four seconds. Next, use an optical cleaning solution and white tissue paper to remove any remaining debris. Apply the solution to the tissue and apply the tissue paper to the lens. Low-pressure strokes should go from the center of the corrector to the outer portion. Do NOT rub in circles!

- Store the telescope in a place not exposed to sunlight, humidity, and dust-free (indoors or in a dry garage).
- Do not store the device in extremely high or extremely low temperatures.
- If not properly stored, it may develop mildew growth and other preventable build-ups.
- Be practically careful after a night observation that the lens has no dew on it before storing the telescope away.
- Do not leave the telescope outside when not in use.
- When not in use, keep the dust cover on as well as the dust cap for the eyepiece opening.
- Accessories should be stored separately in a box, with all their caps on.

11. DISPOSAL - RECYCLING

Correct disposal of old devices, packaging materials, and batteries helps prevent negative consequences for the environment and human health.

11.1 Disposal of the telescope



The telescope is designed and manufactured with high-quality materials and components, which can be recycled and reused.

Dispose of the telescope with your normal household waste is not allowed. Dispose must be done through an approved waste disposal firm or by your local waste facility. When discarding the product, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.

11.2 Disposal of the viewfinder



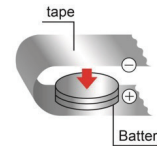
The viewfinder is classed as Electrical or Electronic equipment so please ensure that at the end of the life of this product it is disposed of correctly following the local authority requirements. It must not be disposed of with household waste.

Fulfill your statutory obligations and contribute to the protection of the environment.

11.3 Disposal of the battery



The red dot viewfinder contains a 3V Lithium coin battery which cannot be disposed of with normal household waste. It should be returned to the manufacturer for disposal or recycled elsewhere following your local regulations.



Remove the Lithium battery from the red dot viewfinder before disposal. Protect the used lithium battery against potential short circuits by covering the poles with adhesive tape.

11.4 Disposal of the packaging material

Ensure that plastic bags, packaging, etc. are properly disposed of. Do not just dispose of these materials with your normal household waste, but make sure they are collected for recycling. Contact your local waste-disposal facility or environmental authority for information on the proper disposal.



Picking a place to observe

Where you place your telescope when observing is dependent upon your unique situation, but if you have a choice, follow these suggestions:

- Find a level or near level spot.
- Choose grass or dirt whenever possible.
- Stay away from decks or other elevated surfaces. They vibrate when you walk on them and will shake your telescope and therefore, the image.
- Never look across or over objects that are producing heatwaves. This includes asphalt parking lots on hot summer days or building rooftops. It will take a while before the surface stops radiating heat, which distorts the air and therefore, the image.
- Try to stay away from sources of light. Turn off your porch lights, and if you are friendly with your neighbors, ask them to turn theirs off as well.
- Pick a location with the widest view of the sky you can find. In wooded areas and those with lots of tall buildings, this can be a challenge.



General Observing

When working with a telescope, there are a few things to remember to ensure you get the best possible image.

- Never look through window glass. Glass found in household windows is optically imperfect, and as a result, may vary in thickness from one part of a window to the next. This inconsistency can and will affect the ability to focus your telescope. In most cases, you will not be able to achieve a truly sharp image, while in some cases you may see a double image. An open window can be even worse, because warmer indoor air will escape out the window, causing turbulence which also affects images. Astronomy is an outdoor activity.
- If you wear corrective lenses (specifically glasses), you may want to remove them when observing with an eyepiece attached to the

telescope. When using a camera, however, you should always wear corrective lenses to ensure the sharpest possible focus. If you have astigmatism, corrective lenses must be worn at all times.



Weather conditions

You will be amazed at how quickly seeing conditions change, and what effect they have on observations! The sky may be clear, but seeing can be so bad that Jupiter or Saturn might look like they are underwater, and even low magnification views are not in focus. The next night (or the next hour!) those same planets will look perfectly focused in your highest magnification eyepiece and all because the seeing conditions improved.

Before you set up your telescope for a night of observing, get in the habit of taking a few moments to look up and check the conditions:

- Are the skies clear or are there passing clouds? Knowing there are clouds in the area helps you understand why an object you are gazing at suddenly disappears.
- Hazy skies, fog, and mist can also make it difficult to focus when viewing terrestrially. The amount of detail seen under these conditions is greatly reduced. Also, when photographing under these conditions, the processed film may come out a little grainier than normal with lower contrast and underexposed.
- Are the stars twinkling? If so, are they steady overhead, or do they twinkle from horizon to horizon? Most of the time, stars overhead are steady, and the twinkling increases as you move towards the horizon due to the increased atmosphere. If stars are twinkling overhead, you have “poor seeing”, but if they are steady almost to the horizon, then grab your scope and get set up, because the seeing is especially good, and who knows how long it will last!
- Is it windy? A slight breeze can help keep dew at bay, but too much wind can degrade seeing conditions and make observing uncomfortable.
- Is it especially humid out? Is dew already forming on surfaces? Dew is not a deal-breaker unless it gets so heavy that all of your optics are affected.



Dealing with dew

Here are a few options:

- **Dew Shield:** These optical tube extensions fit over the front end of the telescope and delay the ability for dew to form on the optics. You can buy flexible dew shields that wrap around your telescope's outer diameter and will lie flat when not in use or flexible heated dew shields that will raise the dew point of the surface to keep dew away. Choose a dew shield that is made to fit your telescope, or measure the outside diameter of the telescope and buy according to those dimensions.
- **Dew Strips:** Dew heaters, or dew strips, are thin strips of a thick material that have heater elements running along their length. They wrap around the outermost edge of the telescope tube, stay put thanks to Velcro, and plug into a hand controller, which allows you to adjust the amount of heat applied to the surface. Dew Controllers often are capable of handling more than one heater, so you can have one for your telescope, one for your finder, or any other number of accessories. Keep in mind that dew heaters and their controllers require DC power, so when considering them, think about how they will be powered.
- **Hairdryer:** Many people use a hairdryer to blow away the dew. If you choose this method, keep in mind that you always want to use the LEAST amount of heat required to do the job. Overheating your mirror will only cause distortions of your image until the glass returns to ambient, and then the blow dryer is needed again. This is why most people use heater strips made for the purpose. They can be set to provide just enough heat to do the job, and only around the perimeter of the mirror, limiting the amount of heat distortion they cause.



Prepare your stuff in advance

Whether you are driving to a dark-sky location or are observing in your backyard, it makes sense to make sure you collect everything you will need

for an evening under the stars before you head outside. Some people find it works best to make a list and keep it near your telescope. Others keep everything they need in accessory cases for quick and easy access. Whichever organizational method you choose, keep in mind that it is better to bring everything out at once than to keep going back into the house and subjecting your eyes to white light, or worse yet, not have what you need when you are miles away from home. Don't forget your red flashlight, remember to bring extra batteries, and pack some coffee or hot cocoa while you're at it!



Red Flashlight

A red flashlight helps you see star charts and equipment in dark surroundings with minimal impact on your night vision.

Artificial light is the enemy of amateur astronomers. When you are out observing faint celestial objects, you need your eyes to perform at their best, and that can only be accomplished when your pupils are as dilated as much as possible. Our pupils dilate to allow us to see better in the dark, and any white light that interferes with that process also interferes with our ability to see details in the dark.

Red light is a lot friendlier to your night sight than white or yellow light, but it still has some impact.

You need to use it judiciously and not keep it on all the time, as it can lower your chances of observing faint deep sky objects. To minimize that impact, turn the red flashlight on when you need to check a star chart or to adjust your telescope or binoculars, but leave it off otherwise.



Cooling the telescope

Telescopes require at least 10 to 30 minutes of cooling down to outside air temperature. However, this may take longer if there is a big difference between the temperature of the telescope and the outside air. This minimizes heat wave distortion inside the telescope tube.

Use this time for planning your session and mounting accessories.

What is OTA (Optical Tube Assembly)?

OTA is the housing and optical train of a telescope; not including the mount, diagonal, eyepiece, or accessories.

What is the aperture of a telescope?

The aperture of a telescope refers to the diameter of the objective lens (for a refracting telescope) or the primary mirror (for a reflecting telescope). The aperture of the telescope determines how much detail you can see. The rule of thumb: the bigger the aperture, the more detail you can see.

Should I choose the larger aperture?

The aperture of a telescope is what determines how much light a telescope can observe. The larger the aperture, the more light is collected, which results in a greater image resolution. In short, with a telescope with a larger aperture, you can see more detail & better detail than the one with a smaller aperture.

What is the focal length of a telescope?

The focal length of a lens is determined when the lens is focused at infinity. The focus length of a telescope is usually associated with the angle of view and the magnification of the telescope. In general, the higher the focal length, the narrower the angle of view, but higher the magnification. For example, with the same aperture and eyepiece, a 700mm focal length telescope will have a wider angle of view than a 900mm telescope, but it will have less magnification.

How to calculate the magnification of a telescope?

The magnification of a telescope is equal to the telescope's focal length divided by the eyepiece's focal length. The focal length of a telescope and an eyepiece are usually measured in millimeters. For example, with a 20mm eyepiece, a 900mm telescope will give you a 45X magnification; with a 6mm eyepiece, a 900mm telescope will give you 150X magnification.

What is a Barlow lens?

A Barlow in astronomy is a lens to increase the magnification of a telescope. Usually, a Barlow would be labeled "2X," "3X," etc. a 2X Barlow doubles the magnification of your telescope, and a 3X Barlow trebles the magnification. For example, using a 2X Barlow on a setup that originally gives you 150X magnification will double your magnification making the overall magnification 300X.

What does the "MM" number on an eyepiece mean?

The "MM" number on an eyepiece refers to the focal length of the eyepiece. For example, a 25mm eyepiece has a focal distance of 25mm. The bigger the number, the longer the focal, which results in a lower magnification. For instance, a 1000mm telescope with a 25mm eyepiece will give you a 40X magnification; a 1000mm telescope with a 10mm eyepiece will give you 100X magnification.

Which eyepiece should I start with?

In general, it is better to start with a lower power eyepiece because the lower magnification allows you to see a larger portion of the sky making locating the object you are interested in viewing easier. As you center the object you want to observe in the eyepiece, you may switch out the lower power eyepiece and insert the higher power eyepiece so you can see more details. Rule of thumb: The larger the number is, the lower the power will be.

Why are the viewfinder and the OTA pointing at a different object?

This is because your OTA is not properly aligned with the viewfinder. First, align your setup during the daytime.

Point your telescope at a land object that is at a far distance and center the object in the eyepiece. Adjust view finder alignment screws till the viewfinder is pointing at the same object you have centered in your eyepiece. Repeat the same procedure at night by pointing at a celestial object such as the moon and you might need to do some small adjustments.

What can I observe with my telescope?

With the included eyepieces, you can observe the crater of the moon, planets of our solar system, as well as Orion Nebula. You can also observe terrestrial objects such as sailboats. However, please keep in mind that never look at the Sun without a proper solar filter, this may permanently damage your eyes.

How to take an image through a telescope with a phone?

Our telescopes are perfect for taking an image of bright objects such as the moon. To take an image through a telescope with your phone is very easy. Point the telescope at and focus on the object you want to take an image of, then hold your phone next to the eyepiece and take an image.

Better yet, you can also use our phone adapter to take an image. Secure the phone holder onto the eyepiece and place your phone onto it. Then adjust the position of the phone till the object appears on your screen. And now you can take as many images as you want to!

Why cannot I get the image to sharp focus?

The image should get to sharp focus with the included eyepieces and diagonal. Check to focus on a distanced land object then try to use the telescope on celestial objects. Check the front lens of the OTA and the eyepiece and see if they are foggy due to the weather, if yes, then use a glass cloth to lightly absorb the condensation. Check if the front lens and eyepieces have finger prints or an eyelash on them, if yes, use rubbing alcohol and glass cloth too lightly and gently clean off the lens (DO NOT RUB).

What is an equatorial mount?

An equatorial mount is a mount for instruments that compensates for the Earth's rotation by having one rotational axis parallel to the Earth's axis of rotation. The advantage of an equatorial mount lies in its ability to allow the instrument attached to it to stay fixed on any celestial object with a diurnal motion by driving one axis at a constant speed.

Will this telescope work with my 1.25" eyepieces?

Yes, by default, this telescope has a 1.25" eyepiece adapter so it will work with all the 1.25" accessories.

What is a red dot viewfinder?

The red dot viewfinder is a zero magnification pointing tool that uses a coated glass window to superimpose the image of a small red dot onto the night sky. To use the finder, simply look through the sight tube and move your telescope until the red dot merges with the object. Make sure to keep both eyes open when sighting.

Refractor vs. Reflector Telescope - What Is The Difference?

The main difference between refractor and reflector telescope is that the refractor uses optical lenses, and the reflector telescope uses mirrors. The difference is also in the maintenance required between those two. The refractor telescope requires less maintenance than a reflector telescope. Refractor telescopes usually have smaller apertures and are more expensive than reflector telescopes.

What is collimation?

Collimation is the process of aligning all the elements of an optical system. Collimation is routinely needed in reflectors, but seldom in refractors.

What is declination?

Similar to Latitude on the Earth's surface, it is the distance in degrees North or South of the Celestial Equator (the projection of the Earth's Equator onto the Celestial Sphere). The degrees can be sub-divided into minutes and seconds.

All TLS variants come with except model TLS-T70700:

Viewfinder - 8X6 optical viewfinder

Tripod - Aluminum fully adjustable

Eyepieces - MA: 6mm, 20mm

Barlow lens - 3X Barlow



TLS-60700

Aperture diameter	60mm
Focal length	700mm
Focal ratio	f/11.7

TLS-60900

Aperture diameter	60mm
Focal length	900mm
Focal ratio	f/15



TLS-70700

Aperture diameter	70mm
Focal length	700mm
Focal ratio	f/10
Mount	Alt-azimuth

TLS-70900

Aperture diameter	70mm
Focal length	900mm
Focal ratio	f/12.9
Mount	Alt-azimuth



TLS-T70700

Aperture diameter	70mm	Eyepieces	4mm, 10mm, 20mm
Focal length	700mm	Mount	Alt-Az
Focal ratio	f/10	Viewfinder	Red dot viewfinder
Mount	Alt-Az	Tripod	Stainless steel fully adjustable
Viewfinder	Red dot viewfinder	Barlow lens	2X Barlow



TLS-S50360

Aperture diameter	50mm
Focal length	3600mm
Focal ratio f	/----

TLS-S50600

Aperture diameter	50mm
Focal length	600mm
Focal ratio f	/----



TLS-S70300

Aperture diameter	70mm
Focal length	300mm
Focal ratio f	/----

TLS-PAZ-90600

Aperture diameter	90mm
Focal length	600mm
Focal ratio f	/----



TLS-PAZ-102600

Aperture diameter	102mm
Focal length	600mm
Focal ratio f	/----

14. CUSTOMER SOLUTIONS

If you have a question concerning your AmScope Telescope, contact the AmScope Customer Service at:

- Email: info@amscope.com
- Telephone: 1-888-950-2888 (toll free) / 949-333-0001.
- Fax: 949-271-4795

Customer Service hours are 5:00 AM to 6:00 PM, Pacific Time, Monday through Friday, excluding holidays.

In the unlikely event that your Telescope requires returns or exchange, write or call the AmScope Customer Service first, before returning the telescope, giving full particulars as to the nature of the problem, as well as your name, address, and daytime telephone number. The great majority of service issues can be resolved by telephone, avoiding the return of the telescope. If factory service is required, you will be assigned a Return Merchandise Authorization (RMA) number prior to the return.

15. DISPOSAL - RECYCLING

Every AmScope telescope, spotting scope, and telescope accessory is warranted by AmScope to be free of defects in materials and workmanship for ONE YEAR from the date of original purchase in the U.S.A. and Canada. This warranty applies to the original purchaser only and is non-transferable.

This warranty is not valid in cases where the product has been abused or mishandled, where unauthorized repairs have been attempted or performed, or where depreciation of the product is due to normal wear and tear. AmScope specifically disclaims special, indirect, or consequential damages or lost profit which may result from a breach of this warranty. Any implied warranties which cannot be disclaimed are hereby limited to a term of one year from the date of original retail purchase. This warranty gives you specific rights. You may have other rights which vary from state to state. AmScope reserves the right to change product specifications or to discontinue products without notice.

OBSERVATION LOG

OBSERVER: _____

OBJECT NAME: _____

DATE & TIME OBSERVED: _____

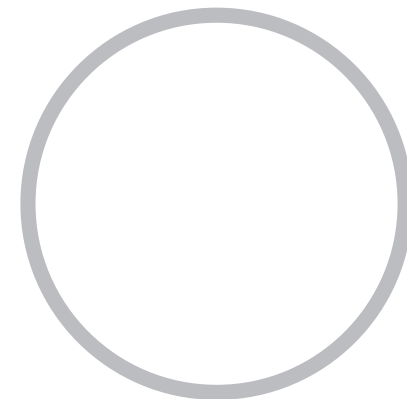
CONSTELLATION: _____

EYEPIECE SIZE: _____

SEEING CONDITIONS: EXCELLENT GOOD POOR

NOTES: _____

**DRAWING
of IMAGE**



OBSERVATION LOG

OBSERVER: _____

OBJECT NAME: _____

DATE & TIME OBSERVED: _____

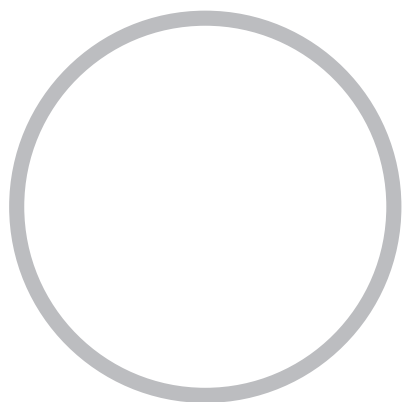
CONSTELLATION: _____

EYEPIECE SIZE: _____

SEEING CONDITIONS: EXCELLENT GOOD POOR

NOTES: _____

**DRAWING
of IMAGE**



OBSERVATION LOG

OBSERVER: _____

OBJECT NAME: _____

DATE & TIME OBSERVED: _____

CONSTELLATION: _____

EYEPIECE SIZE: _____

SEEING CONDITIONS: EXCELLENT GOOD POOR

NOTES: _____

**DRAWING
of IMAGE**

